

Geometry Unit 8 Review

1. What is your name?

2. In the proportion, $\frac{a}{b} = \frac{c}{d}$, which are the means and which are the extremes?

b & c - means

a & d - extremes

3. What is a mean proportional?

Proportion in which the means are equal.

$$\frac{a}{x} = \frac{x}{b}$$

4. What are similar shapes?

two shapes that have equal angles & sides that are in proportion.

5. What is the symbol for similar?

\sim

6. What is a scale factor?

ratio of 2 corresponding sides

7. What are the 3 ways to prove triangles are similar?

AA, SSS similarity & SAS similarity

Geometry Unit 8 Review

8.1

RATIO AND PROPORTION

Examples on
pp. 457–460

EXAMPLE You can solve a proportion by finding the value of the variable.

$$\frac{x}{12} = \frac{x+6}{30}$$

Write original proportion.

$$30x = 12(x+6)$$

Cross product property

$$30x = 12x + 72$$

Distributive property

$$18x = 72$$

Subtract $12x$ from each side.

$$x = 4$$

Divide each side by 18.

Solve the proportion.

8. $\frac{3}{x} = \frac{2}{7}$

$$105$$

9. $\frac{a+1}{5} = \frac{2a}{9}$

$$10a = 9a + 9$$
$$a = 9$$

10. $\frac{2}{x+1} = \frac{4}{x+6}$

$$x = 4$$

11. $\frac{d-4}{d} = \frac{3}{7}$

$$d = 7$$

8.2

PROBLEM SOLVING IN GEOMETRY WITH PROPORTIONS

Examples on
pp. 465–467

EXAMPLE In 1997, the ratio of the population of South Carolina to the population of Wyoming was 47:6. The population of South Carolina was about 3,760,000. You can find the population of Wyoming by solving a proportion.

$$\frac{47}{6} = \frac{3,760,000}{x}$$

$$47x = 22,560,000$$

$$x = 480,000 \quad \text{The population of Wyoming was about 480,000.}$$

Geometry Unit 8 Review

12. You buy a 13 inch scale model of the sculpture The Dancer by Edgar Degas. The ratio of the height of the scale model to the height of the sculpture is 1 : 3. Find the height of the sculpture.

39 in

13. The ratio of the birth weight to the adult weight of a male black bear is 3 : 1000. The average birth weight is 12 ounces. Find the average adult weight in pounds.

250 lb

8.3

SIMILAR POLYGONS

Examples on
pp. 473–475

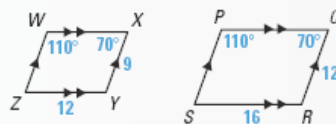
EXAMPLE The two parallelograms shown are similar because their corresponding angles are congruent and the lengths of their corresponding sides are proportional.

$$\frac{WX}{PQ} = \frac{ZY}{SR} = \frac{XY}{QR} = \frac{WZ}{PS} = \frac{3}{4}$$

$$m\angle P = m\angle R = m\angle W = m\angle Y = 110^\circ$$

$$m\angle Q = m\angle S = m\angle X = m\angle Z = 70^\circ$$

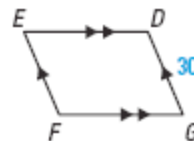
The scale factor of $\square WXYZ$ to $\square PQRS$ is $\frac{3}{4}$.



$\square DEFG \sim \square HJKL$

14. Find the scale factor of $\square DEFG$ to $\square HJKL$.

5/3



15. What is DE?

45

16. What is $m\angle F$?

113°

Geometry Unit 8 Review

17. What is the ratio of the perimeter of $\square HJKL$ to $\square DEFG$?

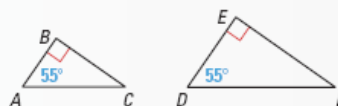
$\frac{3}{5}$

8.4

SIMILAR TRIANGLES

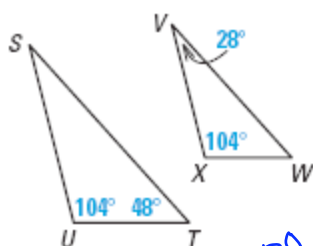
Examples on
pp. 480-482

EXAMPLE Because two angles of $\triangle ABC$ are congruent to two angles of $\triangle DEF$, $\triangle ABC \sim \triangle DEF$ by the Angle-Angle (AA) Similarity Postulate.



Determine whether the triangles can be proved similar or not. Explain why or why not. If they are similar, write a similarity statement.

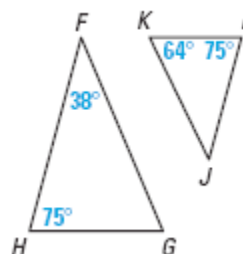
18.



Yes $m\angle S = 28^\circ$ AA

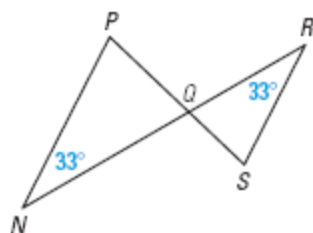
$\triangle STU \sim \triangle VWX$

19.



No

20.



Yes vertical \angle 's
are \cong AA

$\triangle PQR \sim \triangle SQR$

Geometry Unit 8 Review

8.5

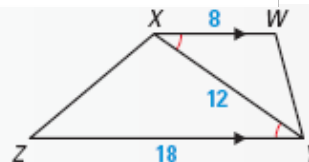
PROVING TRIANGLES ARE SIMILAR

Examples on
pp. 488–491

EXAMPLES Three sides of $\triangle JKL$ are proportional to three sides of $\triangle MNP$, so $\triangle JKL \sim \triangle MNP$ by the Side-Side-Side (SSS) Similarity Theorem.



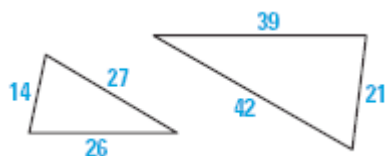
Two sides of $\triangle XYZ$ are proportional to two sides of $\triangle WXY$, and the included angles are congruent. By the Side-Angle-Side (SAS) Similarity Theorem, $\triangle XYZ \sim \triangle WXY$.



Geometry Unit 8 Review

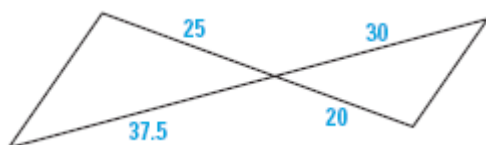
Are the triangles similar? If so, state the similarity and a postulate or theorem that can be used to prove that the triangles are similar.

21.



No.

22.



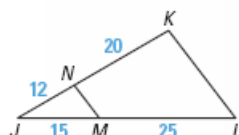
yes.
SAS similarity

8.6

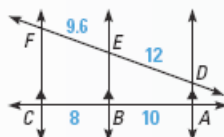
PROPORTIONS AND SIMILAR TRIANGLES

Examples on
pp. 498-501

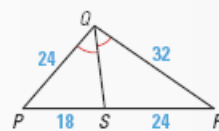
EXAMPLES You can use proportionality theorems to compare proportional lengths.



$$\frac{JN}{NK} = \frac{12}{20} = \frac{3}{5} \quad \frac{JM}{ML} = \frac{15}{25} = \frac{3}{5}$$



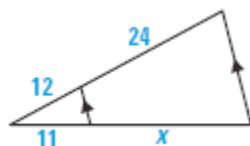
$$\frac{AB}{BC} = \frac{10}{8} = \frac{5}{4} \quad \frac{DE}{EF} = \frac{12}{9.6} = \frac{5}{4}$$



$$\frac{QP}{QR} = \frac{24}{32} = \frac{3}{4} \quad \frac{SP}{SR} = \frac{18}{24} = \frac{3}{4}$$

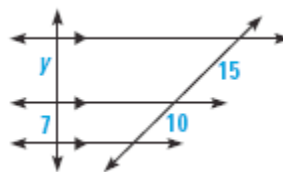
Find the value of the variable.

23.



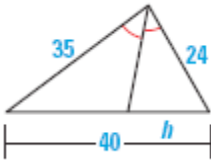
$$x = 22$$

24.

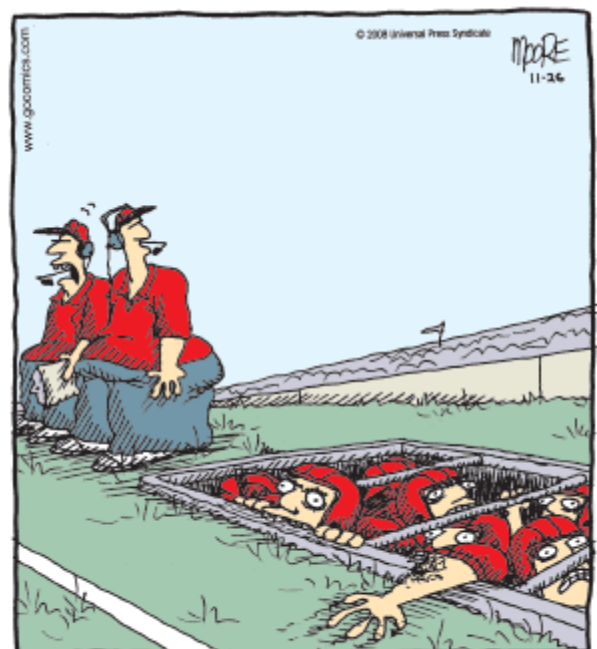


$$y = 10.5$$

25.



$$h = 16\frac{16}{59}$$



"They're gonna punt. ... Release the special teams."